Response of Cummings Properties, LLC to
Technical Review of the Sampling and Analysis Plan
Elliott Landing 201 Elliott Street
Beverly, MA dated December 15, 2016

Cummings Properties, LLC ("CPL") provides its responses below to each of EPA's comments in EPA's January 6, 2017 technical review of the Sampling and Analysis Plan for Elliott Landing, 201 Elliott Street, Beverly, MA. For ease of review, CPL's responses will track the comment number assigned by EPA and will be provided in italics.

Section 1.2 Project organization

1) The entire following paragraph should be deleted from the work plan. EPA cannot commit to be present during an unknown date for the sampling. It's unclear what US EPA requirements are being referred to and who the "property owner" actually is. Please clarify.

> "The USEPA Project Manager/Officer will be responsible for communicating USEPA requirements with FSL's Project Coordinator. It is anticipated that the USEPA will function in an advisory/consultative role for the planned sampling and will provide input when changes to the procedures outlined in this plan are indicated during the field work. Such changes will be documented as field-approved changes to the plan, if necessary. The USEPA Project Manager will also have the responsibility to communicate USEPA requirements with the property owner and to assure that the property owner is aware in a timely manner of changes that USEPA may request or require from procedures described herein."

CPL Response No. 1 – The paragraph has been deleted from the revised Sampling and Analysis Plan ("SAP").

Section 1.3 Statement of Specific Problem

2) The first sentence in the second paragraph states the following:

> "Based upon review of the USM Site history and consideration of the upcoming residential use of the Locus, the primary question to be addressed by this investigation is whether potential volatile contaminant concentrations present a significant risk to the indoor air of the occupied building at the Locus."

Note the risk is not to indoor air but to the building occupants. The sentence should read "…the primary question to be addressed by this investigation is whether petroleum and/or volatile contaminants presents a potential **risk to the occupants** of the building…" or "…whether petroleum and/or volatile contamination presents a potential indoor air risk to building occupants" or "…in accordance with the MCP, determine that there is "no significant risk and no substantial hazard."

CPL Response No. 2 – The paragraph has been edited in the revised SAP.

Section 1.4 Split Sampling by USEPA

3) This paragraph should be deleted as it's not relevant to the planned work. EPA does not require direction to collect split samples.

CPL Response No. 3 – The paragraph has been deleted from the revised SAP.

Section 2.1 Overall USM Site Background

4) In the first paragraph on page 4 it states the following: "Groundwater risk was not quantified at that time as the groundwater concentrations were compared to drinking water standards, which were not considered to be applicable at the site. The site is not located in a drinking water resource area."

This is a confusing sentence that is not really relevant and should be deleted.

CPL Response No. 4 – The paragraph has been deleted from the revised SAP.

5) In the fourth paragraph on page 4 it states the following:

> "No groundwater remediation was necessary as existing groundwater well concentrations were in compliance with the existing MCP standards for non-drinking water resource areas (Method 1 GW-2 and GW-3 standards)."

Note that there were insufficient groundwater sampling events to draw the conclusion in the above comment. Further, it is not clear why Method 1 standards were used at this site. There was a potential for exposure to contaminated soil, groundwater, sediment, surface water and indoor air and therefore, a Method 1 risk assessment would not be appropriate.

CPL Response No. 5 – The sentence has been deleted from the revised SAP. This conclusion, like many others throughout the decades-long period during which response actions have been performed at the locus, was issued by an environmental professional pursuant to the protocols then in effect. CPL understands that EPA disagrees with the LSP's conclusion on this particular topic and appreciates that standards and protocols have changed over time, but such disagreement need not be resolved here and need not delay the anticipated work. See Responses to comments 6 and 9.

6) Groundwater sampling in 1988 followed by one round of sampling in 1995 would not provide sufficient data to draw the conclusions below. Please delete this sentence.

> "The 1995 groundwater sampling event confirmed that groundwater quality had not significantly changed since the Phase II and that site contaminants were relatively immobile and generally limited to soil."

CPL Response No. 6 – The sentence has been deleted from the revised SAP. This conclusion, like many others throughout the decades-long period during which response actions have been performed at the locus, was issued by an environmental professional pursuant to the protocols then in effect. CPL understands that EPA disagrees with the LSP's conclusion on this particular topic and

appreciates that standards and protocols have changed over time, but such disagreement need not be resolved here and need not delay the anticipated work. See Responses to comments 5 and 9.

7) Regarding the following paragraph, please provide a complete reference to the location of this post excavation groundwater monitoring and NAPL evaluation. Again, it is not clear why GW-2 and GW-3 standards are/were being used as in a Method 1 Risk Assessment. The site does not meet the criteria for use of a Method 1 Risk Assessment (i.e., only soil and groundwater as media of concern).

> "Groundwater samples collected subsequent to the NAPL removal and soil excavation did not detect the presence of NAPL in any monitoring well or dissolved concentrations above the applicable MCP GW-2 and GW-3 standards."

CPL Response No. 7 – The sentence was deleted in the revised SAP. The NAPL evaluation was described in the Phase IV As-Built Construction and Final Inspection Report (October 1997) by Haley and Aldrich. NAPL was removed (skimmed) from the groundwater surface during the excavation of the Chip Grind Shed (location shown in Figure 3). The water samples collected at that time were not groundwater well samples, but water samples collected as required by the NPDES Permit Exclusion from the dewatering of the excavation; samples were collected prior to discharge to the Lower Shoe Pond.

8) In the following sentence, what does a significant increase in total risk mean? A more appropriate statement, if true, would be that there is no unacceptable risk.

> "For each amendment, additional site assessment and/or risk characterization was performed to document that the modification or removal of certain AUL restrictions would not result in a significant increase in total site risk."

CPL Response No. 8 – The sentence has been edited in the revised SAP.

9) The following sentence is an inappropriate conclusion. There was no data available to determine that no vapor intrusion was occurring or that no vapor was present in the building. This is one of the fundamental problems with the previous site evaluation and the basis for the Administrative Consent Order.

> "While volatile compounds were detected in the soil gas samples, the conclusion of the risk characterizations was that no substantial vapor intrusion was present in the buildings."

CPL Response No. 9 – This conclusion was made after the collection of the 2008 soil gas data and after a Method 3 risk characterization was performed (also in 2008). Data were available, and this conclusion, which was issued pursuant to the protocols then in effect for vapor intrusion evaluation, was, in the opinion of CPL's LSP, correct and appropriate at that time. The sentence merely describes historical sampling at the locus and the conclusion formed by CPL's LSP. CPL understands that EPA disagrees with the LSP's conclusion, but such disagreement need not be resolved here and need not delay the anticipated work. See Responses to comments 5 and 6.

10) Please provide a complete reference for these soil standards.

> "Trace concentrations of naphthalene (detected in only two samples with a maximum concentration of 0.818 mg/kg), toluene (detected in only one sample at a concentration of 0.15 mg/kg) and 1,1,1-trichloroethane (detected in only one sample at a concentration of 0.11 mg/kg) were detected but at concentrations several orders of magnitude lower than the closest MCP soil standard applicable to possible vapor intrusion."

Note the following from the Mass DEP Interim Final Vapor Intrusion Guidance December 20, 2011:

"Data from soil sampling is best used to confirm that contamination is present in the subsurface rather than rule out the vapor intrusion pathway. Unless the point of release of VOCs can be identified, accessed, and adequately sampled, soil data is often not a conclusive Line of Evidence for the vapor intrusion pathway. If the site history indicates that the soil may be impacted, soil samples can be collected to identify possible impacts and extent, but sub-slab soil gas samples should be collected to assess the soil-to-indoor air pathway."

CPL Response No. 10 – This excerpted sentence, like many other conclusions and analyses throughout the decades-long period during which response actions have been performed at the locus, was issued by an environmental professional in 20__ pursuant to the protocols then in effect. CPL is aware of Mass DEP's Interim Final Vapor Intrusion Guidance (2011) as well as its Vapor Intrusion Guidance: Site Assessment, Mitigation and Closure (2016) and intends to incorporate the relevant portion(s) of such Guidance in the planned work at the locus.

Section 3.0 Project Data Quality Objectives

11) Depending upon the results of the initial groundwater sampling, Quarterly (seasonal) groundwater sampling may be deemed appropriate.

CPL Response No. 11 – Understood.

Section 3.3 Data Review and Validation

12) The 2nd and 3rd sentences in this paragraph appear contradictory. Please revise as appropriate.

> "Validation will be performed on the data but will be limited to holding times and QC results, as summarized on forms from the laboratory. Validation actions will be in accordance with the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, dated December 1996."

Please refer to the following updated QA guidance available at the following location: https://www.epa.gov/quality/agency-wide-quality-system-documents#spec

Guidance on Environmental Data Verification and Data Validation (**QA/G-8**)	EPA/240/R-02/004 November 2002 Quality Document Reissue	Guidance to help organizations conduct data verification and data validation activities.

Data Quality Assessment: A Reviewer's Guide (**QA/G-9R**)	EPA/240/B-06/002 February 2006	General guidance to organizations on assessing data quality criteria and performance specifications for decision making. G-9R is non-technical document and shows a reviewer what constitutes an appropriate Data Quality Assessment (DQA), and how to recognize situations or reports where a DQA has been conducted.
Data Quality Assessment: Statistical Tools for Practitioners (**QA/G-9S**)	EPA/240/B-06/003 February 2006	This document can be considered the technical aspect of G-9R. The document is designed as a "tool-box" of useful techniques in assessing the quality of data. The overall structure of the document will enable the analyst to investigate many

CPL Response No. 12 – The sentence has been edited in the revised SAP.

Section 3.4 Data Management

13) GPS, in addition to field sketches, should be used to document sample location.

CPL Response No. 13 – Understood.

Section 3.5 Oversight and Assessment

14) Should this section be discussing field and project oversight?

CPL Response No. 14 – The section has been deleted from the revised SAP.

15) The following does not agree with Section 3.3, Data Review and Validation above, and should clearly state the specific QA/QC to be conducted in accordance with the appropriate guidance.

> "The FSL QA Officer will also review laboratory reports to determine that the required level of QA/QC reporting has been achieved and that the quality control limits for laboratory blanks, surrogate recoveries, and duplicates fall within acceptable limits."

This information would be more appropriately placed in Section 3.3.

Specify and/or include a complete reference for the "required level of QA/QC reporting."

CPL Response No. 15 – The sentence has been edited in the revised SAP.

Section 4.1 Soil Vapor Sampling

16) The first sentence needs to be reworded as described above for Section 1.3.

CPL Response No. 16 – The sentence has been edited in the revised SAP.

17) On page 10, in the second full paragraph it states the following:

> "If the soil vapor concentrations are determined to be less than the residential screening levels as established by USEPA and MADEP at these locations, the indoor air risk will be considered managed. In such event, no further soil vapor investigation will be required."

This statement should be deleted. At this point in the process the goal is to determine if there is contamination in groundwater, soils and soil gas that have the potential to impact indoor air.

Please refer to the fact sheet at the following location.
http://www.nj.gov/dep/srp/stakeholders/20070629riskfactsheet.pdf

CPL Response No. 17 – The objective of the SAP is not only to determine whether contamination exists that may have the potential to affect indoor air, it is also to conclude (if possible) that a condition of no significant risk already exists given the historic data and the new data to be collected. The fact sheet referred to in Comment 17 is only a generic, out-of-state fact sheet on risk assessment designed for public consumption. It provides only a brief overview of the process intended for those not familiar with the process. This fact sheet provides no specific value for this SAP.

18) The statement in comment 18 above appears to be an attempt to circumvent the risk assessment process. If sub-slab vapor is a source of indoor air contamination and there are other potential receptor exposures on site (direct exposure to contaminated soils regardless of current inaccessibility) then a Method 3 risk assessment may be warranted. In addition, indoor air sampling may be warranted to determine if there is a critical exposure pathway at this residential property. Screening levels should be used initially to determine sufficiently low reporting limits, particularly when there is more than one route of exposure and media of concern.

"Managed" implies some form of control which would not be the case as described here.

CPL Response No. 18 – The objective of the SAP is not only to determine whether contamination exists that may have the potential to affect indoor air, it is also to conclude (if possible) that a condition of no significant risk already exists given the historic data and the new data to be collected. The statement in question is not intended to circumvent the risk assessment process; it actually includes such process. If groundwater samples have no VOC detections over the MCP

Method GW-2 standards and all soil gas samples are below the screening levels contained in MassDEP's Final Vapor Intrusion Guidance (Policy WSC 16-435, October 2016), then sufficient lines of evidence will have been established to support the conclusion that no significant vapor intrusion is occurring. If VOC levels are detected at concentrations below the screening levels, they would be considered at a level of no significant risk (using the Method 3 approach) unless at least six different VOCs were present at concentrations equal to the applicable screening levels. Using the Method 3 approach, it is possible to have VOC concentrations exceeding the screening standards and still be at a condition of no significant risk. The screening levels are designed to be overly conservative and a departure point in the vapor intrusion evaluation process.

19) The last two sentences on page 9, continued on page 10, state the following:
"Vapor intrusion would not be expected in a newly constructed building even if a VOC source were present underneath the building. Because of this, and because a VOC source underneath the building is not suspected, indoor air sampling will not be conducted. Air sampling will be limited to sub-slab soil gas samples collected underneath the building."

Please provide a complete reference for the first sentence. The last 2 sentences disagree with the statement in the 3rd full paragraph on page 10 which states that "…indoor air samples may be collected at or near location of soil gas sample points with elevated VOC concentrations to establish if vapor intrusion is actually occurring."

The need for indoor air sampling will need to be determined based upon the results of the groundwater and soil gas sampling. These statements require revision.

Add "and petroleum hydrocarbons" following "elevated VOCs" in the above sentence.

CPL Response No. 19 – The sentence has been edited in the revised SAP. A newly-constructed building will have a good seal between the foundation and the soil and will not have any cracks, holes, or other faults that can be caused by settling over time. Also, indoor air sampling of a newly completed building would typically detect the presence of VOCs due to new building materials or interior decorations such as paints, adhesives, etc. which would be considered false positives in a vapor intrusion assessment. The intent is not to collect indoor air samples as part of this initial scope of work, but they would be collected in subsequent sample events if needed based upon the results of the initial sampling.

Section 4.1.1 Vapor Probe Installation

20) Step number 2 in the probe installation process states that the 3/8" diameter drilled hole will be vacuumed of debris. Avoid the use of a vacuum so that any potential sub-slab vapors are not influenced.

21) The second paragraph states the following:

> "A portion of each soil sample collected at 5-foot sample intervals will be placed in a plastic re-sealable bag and allowed to volatilize. The headspace of each bag will be measured in the field for volatile organic compounds (VOCs) using a photoionization detector."

CPL Response No. 20 – Understood.

Section 4.2.2.1 Drilling, Soil sampling, and Logging

Depending upon the ambient outdoor air temperature, the length of the boring should be screened with the PID. Samples should be collected for VOC screening based on this information and any other obvious signs of contamination such as odor or discoloration.

CPL Response No. 21 – Understood.

22) This section also states that no soil samples will be collected. If gross contamination is noted, it is recommended that soil samples be collected and submitted to a laboratory for analyses. A discussion and preparation in advance with the lab and having a few sample containers ready would be ideal.

CPL Response No. 22 – Understood.

Section 5.1.1 Analytical Laboratory

23) Please provide a complete reference for the USM Quality Assurance Project Plan.

CPL Response No. 23 – The section has been edited in the revised SAP.

24) Has the QAPP been updated to include groundwater analyses?

CPL Response No. 24 – The 2012 QAPP has not yet been revised to include groundwater analysis. The timeline of the overall scope of work associated with the proposed Consent Order is such that this SAP is being finalized prior to the submittal of a revised QAPP.

Section 5.3 Field Screening

25) Use of a 10.6eV lamp does not agree with what is in Section 4.1.2 (11.8 eV). Please verify and correct as appropriate.

CPL Response No. 25 – The section has been edited in the revised SAP.

Section 5.5.1 Soil Vapor Samples

26) Add “and petroleum hydrocarbons” following VOCs in the first sentence.

CPL Response No. 26 – The sentence has been edited in the revised SAP.

Figure 4

27) Please describe the space where samples SB-11, SB-10 and SB-9 were located. The building configuration appears different than that in Figure 2. Is this white space part of the building or open space? If it is open space, it would be an ideal location for one additional monitoring well (adjacent to a preferential pathway and downgradient of elevated petroleum hydrocarbons in groundwater).

CPL Response No. 27 – The configuration reflected in Figure 2 was a concept configuration; the as-built configuration is depicted in Figure 4. The "white space" on Figure 4 (where SB-9, SB-10, and SB-11 are located) has been edited in the revised Figure 4. That area is finished building space on grade, utilized as storage space for unit owners, restrooms, a fitness center, and a common room. It is not possible to install a monitoring well in that area. The "courtyard" is an open, exterior area on the second level of the building that contains concrete pavers and planters for aesthetic effect. There is no soil access on the "courtyard," as it is located on the second story of the building.

28) It is assumed that the gray shaded building, farthest to the south, is the Elliot Street Landing building to be sampled. It's not clear why building 900 is also shaded gray.

CPL Response No. 28 – The figure has been edited in the revised SAP.

29) Please show the location of monitoring well WPB-302 on the figure.

CPL Response No. 29 – The figure has been edited in the revised SAP.